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10/542,643	07/19/2005	Toshinori Takatsuka	04208.0220	1715

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EXAMINER	
HAILEMARIAM, EMMANUEL	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/542,643	TAKATSUKA, TOSHINORI	
	Examiner	Art Unit	
	Emmanuel Hailemariam	2609	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *03* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07/19/05*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *19-48* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *19-48* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 July 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *03/0806 - 10/19/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. **Claim19** is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted prior Art (AAPA), (Fig.1, 13 and 14).

As to claim19, AAPA disclose a pointing device comprising: a magnet that is movably supported in parallel to a plane; and a plurality of magnetic sensors for detecting magnetic flux density produced by said magnet in a direction parallel to the plane (fig. 1(3)[0002], wherein said magnetic sensors detect variations in the magnetic flux density in the direction parallel to the plane ([0003]), the variations being caused by movement of said ring-like magnet (fig.13 (72) [0103]).

But, AAPA doesn't explicitly teach a ring-like magnet. However, it is obvious for one ordinary skill in the art at that time of the invention could supply either a rectangular, circular or ring like magnet that is movably supported in parallel to a plane. The reason is that the ring like shape gives flexibility to move the magnet in all direction as circular movement can cover all angles as a function of the radius. In addition to that, AAPA discloses the claimed invention except for the shape "ring like" magnet. It would have been an obvious matter of design choice to have a ring-like magnet, since such a

modification would have involved a mere change in the size or shape of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. In re Rose, 105 USPQ 237 (CCPA 1955).

3. **Claim 20-49** are rejected under 35 U.S.C.103 (a) as being unpatentable over Applicant's Admitted prior Art (AAPA), (Fig.1, 13 and 14) in view of Arita et al. (5504502).

As to claim 20, (AAPA) discloses a pointing device comprising: a magnet that is movably supported in parallel to a plane. But, does not disclose that the ring-like magnet is internally and externally magnetized unipolarly. Arita, however, discloses the pointing device as claimed in claim 19, wherein said ring-like magnet is internally and externally unipolarly magnetized (fig.9A (18)).

AAPA and Arita are analogous arts because they are from the same field of endeavor namely pointing device.

It would have been obvious to one ordinary skill in the art to provide ring-like magnet with an internal and external unipolarliy magnetized element as taught by Arita to the pointing device of AAPA.

The motivation would have been that for any voltage, which is proportional to the magnet, internally and externally magnetized either side of the magnet polarity, outputted through terminal of a device; by detection mechanism reduces the consumption of power. Therefore, this unipolarliy-magnetized characteristic is useful for low power consumption (col. 6, lines 15-25).

As to claim 21, Arita discloses the pointing device as claimed in claim 20, further comprising a printed circuit board on which a resin layer is provided, wherein said ring-like magnet is fixed to said resin layer, and said magnetic sensors are placed on said printed circuit board (fig.1 (14), col.4 lines 47-50).

As to claim 22, Arita discloses the pointing device as claimed in claim 20; wherein said magnetic sensors are disposed symmetrically on X and Y axes, which are two axes on a two dimensional plane of an orthogonal system, and said ring-like magnet is placed near the center of said magnetic sensors (fig. 8A, 8B).

As to claim 23, Arita discloses the pointing device as claimed in claim 20, wherein said magnetic sensors are magnetic sensors utilizing Hall effect, and the output signals are proportional to the magnetic flux density (fig.9A (18), col.6 lines 15-20; it is apparent that the magnet consists of this hall effect phenomenon, since a Hall effect refers to the potential difference (Hall voltage) on the opposite sides of an electrical conductor through which an electric current is flowing, created by a magnetic field applied perpendicular to the current; which is a magnetic characteristic as applied in the indicated figure).

As to claim 24, Arita discloses the pointing device as claimed in claim 20, wherein said magnetic sensors are magnetic sensors utilizing magneto-resistive effect (fig.11;

the application of magnet reduces the resistance of the material to the applied force, and the circuit may be able to use as a sensor).

As to claim 25, Arita discloses the pointing device as claimed in claim 20, further comprising an origin returning means for returning said ring-like magnet to the origin using magnetic force generated by said ring-like magnet (fig.28 (61), col.10 lines 25-33).

As to claim 26, Arita discloses the pointing device as claimed in claim 19, wherein said ring-like magnet has at least one of its internal wall and external wall magnetized in a multipolar manner, and said magnetic sensors are faced to a magnetic pole center of said ring-like magnet magnetized in a multipolar manner (fig.8A (14,18) fig. 9A (14), col. 6 lines10-20).

As to claim 27, Arita discloses the pointing device as claimed in claim 26, further comprising a printed circuit board (fig.10 (17)) on which a resin layer is provided, wherein said ring-like magnet is fixed to said resin layer, and said magnetic sensors are placed on said printed circuit board (fig.1 (14), col.4 lines 47-50).

As to claim 28, Arita discloses the pointing device as claimed in claim 26, wherein said magnetic sensors are disposed symmetrically on X and Y axes, which are two axes on a two dimensional plane of an orthogonal system, and said ring-like magnet is placed near the center of said magnetic sensors (fig.8A, 8B).

As to claim 29, Arita discloses the pointing device as claimed in claim 26, wherein said magnetic sensors are magnetic sensors utilizing Hall effect, and the output signals are proportional to the magnetic flux density (fig.9A (18), col.6 lines 15-20).

As to claim 30, Arita discloses the pointing device as claimed in claim 26, wherein said magnetic sensors are magnetic sensors utilizing magneto-resistive effect (fig.11; the application of magnet reduces the resistance of the material to the applied force, and the circuit may be able to use as a sensor).

As to claim 31, Arita discloses the pointing device as claimed in claim 26, further comprising an origin returning means for returning said ring-like magnet to the origin using magnetic force generated by said ring-like magnet (fig.28 (61), fig.1 (10) col.10 lines 25-33).

As to claim 32, Arita discloses the pointing device as claimed in claim 19, further comprising a printed circuit board on which a resin layer is provided, wherein said ring-like magnet is fixed to said resin layer (col.4 lines 51-55), and said magnetic sensors are placed on said printed circuit board (fig.10 (17) (14), sensor col.9 lines 27-36).

As to claim 33, Arita discloses the pointing device as claimed in claim 32, wherein said resin layer and said printed circuit board have their opposing faces not bonded to each other (fig. 9A (18)), col.7 lines 36-38).

As to claim 34, the pointing device as claimed in claim 32, wherein said resin layer is an elastic sheet (fig.1 (11), col.4 lines 51-53).

As to claim 35, Arita discloses the pointing device as claimed in claim 32, wherein said resin layer is a silicone resin (col. 4, lines 51-55; since resin layer is characterized by being elastic sheet, it Is very useful in pressure sensitive adhesives, silicone rubbers, coatings and additives)

As to claim 36, Arita discloses the pointing device as claimed in claim 32, wherein said magnetic sensors are disposed symmetrically on X and Y axes, which are two axes on a two dimensional plane of an orthogonal system, and said ring-like magnet is placed near the center of said magnetic sensors (fig.8A,fig.8B).

As to claim 37, Arita discloses the pointing device as claimed in claim 32, further comprising a switch on the resin layer side of said printed circuit board and at about the center of said ring-like magnet (fig.19 (15), col.8 lines 38-43)

As to claim 38, Arita discloses the pointing device as claimed in claim 37, further comprising a projection for depressing said switch at a portion facing said switch on said resin layer (fig.20A, col.8 lines 64-68).

As to claim 39, Arita discloses the pointing device as claimed in claim 19, wherein said magnetic sensors are disposed symmetrically on X and Y axes, which are two axes on a two dimensional plane of an orthogonal system, and said ring-like magnet is placed near the center of said magnetic sensors (fig.8A, fig.8B).

As to claim 40, Arita discloses the pointing device as claimed in claim 39, further

comprising a switch on the resin layer side of said printed circuit board and at about the center of said ring-like magnet (fig.43 (96,97,98), fig.44 96(97,98), col.12 lines 12-16,col.12 line 26-30).

As to claim 41, Arita discloses the pointing device as claimed in claim 40, further comprising a projection for depressing said switch at a portion facing said switch on said resin layer (fig.20A, col.8 lines 64-68).

As to claim 42, Arita discloses the pointing device as claimed in claim 19, wherein said magnetic sensors are magnetic sensors utilizing Hall effect, and the output signals are proportional to the magnetic flux density (fig.9A (18), col.6 lines 15-20; it is apparent that the magnet consists of this hall effect phenomenon, since a Hall effect refers to the potential difference (Hall voltage) on the opposite sides of an electrical conductor through which an electric current is flowing, created by a magnetic field applied perpendicular to the current; which is a magnetic characteristic as applied in the indicated figure).

As to claim 43, Arita discloses the pointing device as claimed in claim 42, wherein said magnetic sensors utilizing the Hall effect are disposed on the resin layer side of said printed circuit board to detect the magnetic flux density in a direction parallel to the surface of said printed circuit board (fig.29, (14-1, 14-2). Fig.10 (17)).

As to claim 44, Arita discloses the pointing device as claimed in claim 42,

wherein said magnetic sensors utilizing the Hall effect are magnetic sensors with a single output terminal.

As to claim 45, Arita discloses the pointing device as claimed in claim 19, wherein said magnetic sensors are magnetic sensors utilizing magneto-resistive effect (fig.11; the application of magnet reduces the resistance of the material to the applied force, and the circuit may be able to use as a sensor).

As to claim 46, Arita discloses the pointing device as claimed in claim 45, wherein said magnetic sensors utilizing the magneto-resistive effect are semiconductor magneto-resistive elements which are disposed on the resin layer side of said printed circuit board to detect the magnetic flux density in a direction parallel to the surface of said printed circuit board ((fig.29, (14-1, 14-2). fig.30 Fig.10 (17)).

As to claim 47, Arita discloses the pointing device as claimed in claim 45, wherein said magnetic sensors utilizing the magneto-resistive effect are four semiconductor magneto-resistive elements disposed symmetrically on X and Y axes, which are two axes on a two dimensional plane of an orthogonal system, wherein two magnetic sensors on the X axis are electrically connected at a first connection point; and two magnetic sensors on the Y axis are electrically connected at a second connection point, and wherein said pointing device detects variations in ambient magnetic flux density caused by movement of said ring-like magnet using electric signals at the first and second connection points (fig.8A, fig.8B) col.5 lines 40-50).

As to claim 48, Arita discloses the pointing device as claimed in claims 19, further comprising an origin returning means for returning said ring-like magnet to the origin using magnetic force generated by said ring-like magnet (fig.28 (61), col.10 lines 25-33).

As to claim 49, Arita discloses an electronic device incorporating the pointing device as defined in any one of claims (see fig. 1).

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Yamazaki (US 4795858) disclose a position coordinates of points on a surface.

Whetstone (4482784) disclose a position determition device.

Ely (US 20010006369) disclosure a position sensor.

Gordon (4029899) disclose a position indicator .

Correspondence

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emmanuel Hailemariam whose telephone number is 571-270-1545. The examiner can normally be reached on M-F 8:00am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amare Mengistu can be reached on 571-2727674. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

E.H 05/23/07

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SUPERVISORY PATENT EXAMINER